SKUDIDIN, G.A., otv. red.; AL'PERT, Ya.L., red.; KRASOVSKIY, V.I., red.; SHVAREV, V.V., red.

[Studies of outer space; transactions] Issledovaniia kosmicheskogo prostranstva. Moskva, Nauka, 1965. 622 p. (MIRA 18:12)

1. Vsesoyuznaya konferentsiya po fizike kosmicheskogo prostranstva, Moscow. 1965.

ACCESSION NR: AP4037628 S/0145/64/000/003/0047/0055

AUTHOR: Shvarev, V. V. (Aspirant)

TITLE: Accelerated fatigue testing by stepwise increase of load

SOURCE: IVUZ. Mashinostroyeniye, no. 3, 1964, 47-55

TOPIC TAGS: fatigue limit, endurance limit, 40Kh steel, 45 steel, fatigue test

ABSTRACT: The endurance limit of medium-carbon steel 45 (0.43% C, 0.56% Mn, 0.23% Si) and chrome steel 40Kh (0.39% C, 0.8% Cr, 0.76% Mn, 0.26% Si) was investigated at starting stresses of 0.5 to 1.5σ_{-1}, stress increments up to $0.15\sigma_{-1}[\sigma_{-1}=S_e]$, and stress durations from 10^4 to 10^7 cycles. Conclusions: Failure stress depends on the properties of the material, the loading rate, the level of local stress increase, and the nature of the stressed state at the points of stress concentration. The following values for starting stress $\sigma_0 \leq \sigma_{-1}$, duration of stress $n_0 \leq 10^6$ cycles, and stress increment $\Delta\sigma \leq 0.15\ \sigma_{-1}$ have practically no effect on the failure stress value. The ratio of failure stress to endurance limit is a function of the loading rate and differs for different steels and different shapes of specimens. Cumulative damage depends essentially on the loading

Card 1/2

ACCESSION NR: AP4037628

rate and, in steel specimens, is minimum at $\alpha = 2 \cdot 10^{-5}$ kg per sq mm per cycle. In the two steels tested, the relation $\sigma_{fail} = \sigma_1 + Ac^{1/2}$ was linear only at a loading rate of 10^{-5} to $8 \cdot 10^{-5}$ kg per sq mm per cycle. Use of this relation to determine fatigue limit offers no advantages over ordinary testing methods in terms of time or number of specimens. Orig. art. has: 7 figures.

ASSOCIATION: Vsesoyuzny*y zaochny*y politekhnicheskiy institut (All-Union Correspondence Polytechnical Institute)

SUBMITTED: 00 DATE ACQ: 22Jun64 ENCL: 00

SUB CODE: MM NO REF SOV: 003 OTHER: 005

Card 2/2

SHVAREV, V.V. (Moskva)

Rapid determination of the endurance limit of steel in conditions of stress concentration. Izv. AN SSSR Met. i gor. delo no.3:173-178 My-Je '64. (MIRA 17:7)

L 51519-65 EWT(m)/EPF(c)/EWP(j)/T Pc-4/Pr-4 RM
ACCESSION NR: AP5015306 UR/0286/65/000/009/0070/0070
678.743.22

AUTHOR: Zil'berman, Ye. N.; Kotlyar, I. B.; Shvarev, Ye. P.; Chernysheva, N. M.

TITLE: A method for producing polyvinylchloride. Class 39, No. 170678

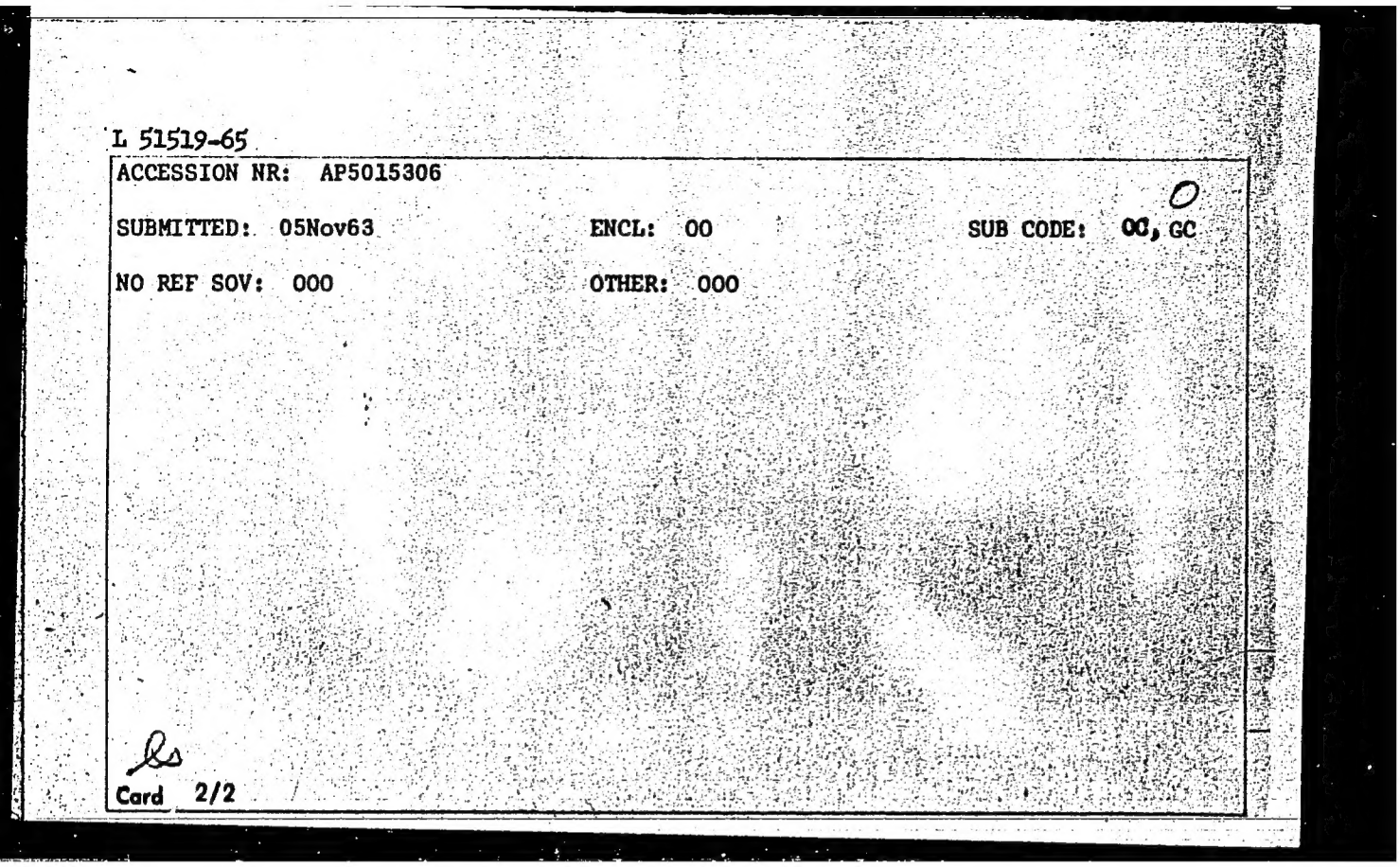
SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 9, 1965, 70

TOPIC TAGS: polyvinylchloride, suspension polymerization, hydrolysis

ABSTRACT: This Author's Certificate introduces a method for producing polyvinyl-chloride by suspension polymerization of vinyl chloride in the presence of a dinitrile of azoisobutyric acid as initiator and in the presence of a stabilizer. Products of caustic hydrolysis of polyacrylonitrile are used as the stabilizer to improve the quality of the polyvinylchloride.

ASSOCIATION: Filial organizatsii gosudarstvennogo komiteta po khimii (Affiliate of the Organization of the State Committee for Chemistry)

Card 1/2



L 51519-65

ACCESSION NR: AP5015306

SUBMITTED: 05Nov63 ENCL: 00 SUB CODE: OC, GC

NO REF SOV: 000 OTHER: 000

Card 2/2

L 24534-66 EWT(m)/EWP(j)/T/ETC(m)-6 IJP(c) DS/JD/WW/JG/RM

ACC NR: AP6011016 (A) SOURCE CODE: UR/0080/66/039/003/0642/0646

AUTHOR: Kotlyar, I. B.; Shvarev, Ye. P.; Chernysheva, N. M.

ORG: none

TITLE: Some properties of aqueous solutions of sodium salts of styrene-maleic anhydride copolymer

SOURCE: Zhurnal prikladnoy khimii, v. 39, no. 3, 1966, 642-646

TOPIC TAGS: styrene, maleic anhydride, emulsion, copolymer, polymerization

ABSTRACT: The stability of concentrated emulsions stabilized with protective colloids is attributed at the present time to the formation of a stable film of stabilizer on the interface. The present article examines those properties of styromal, a styrene-maleic anhydride copolymer (whose sodium salt is a stabilizer employed in suspension polymerization) which can determine the stability of the protective film at the interface. Such properties are the molecular weight and the degree of neutralization of the copolymer in solution. The styromals studied had different molecular weights. Their viscosity, surface tension, pH, foaming, and stabilizing

Card 1/2 UDC: 542.951.92 + 547.27

L 24534-66

ACC NR: AP6011016

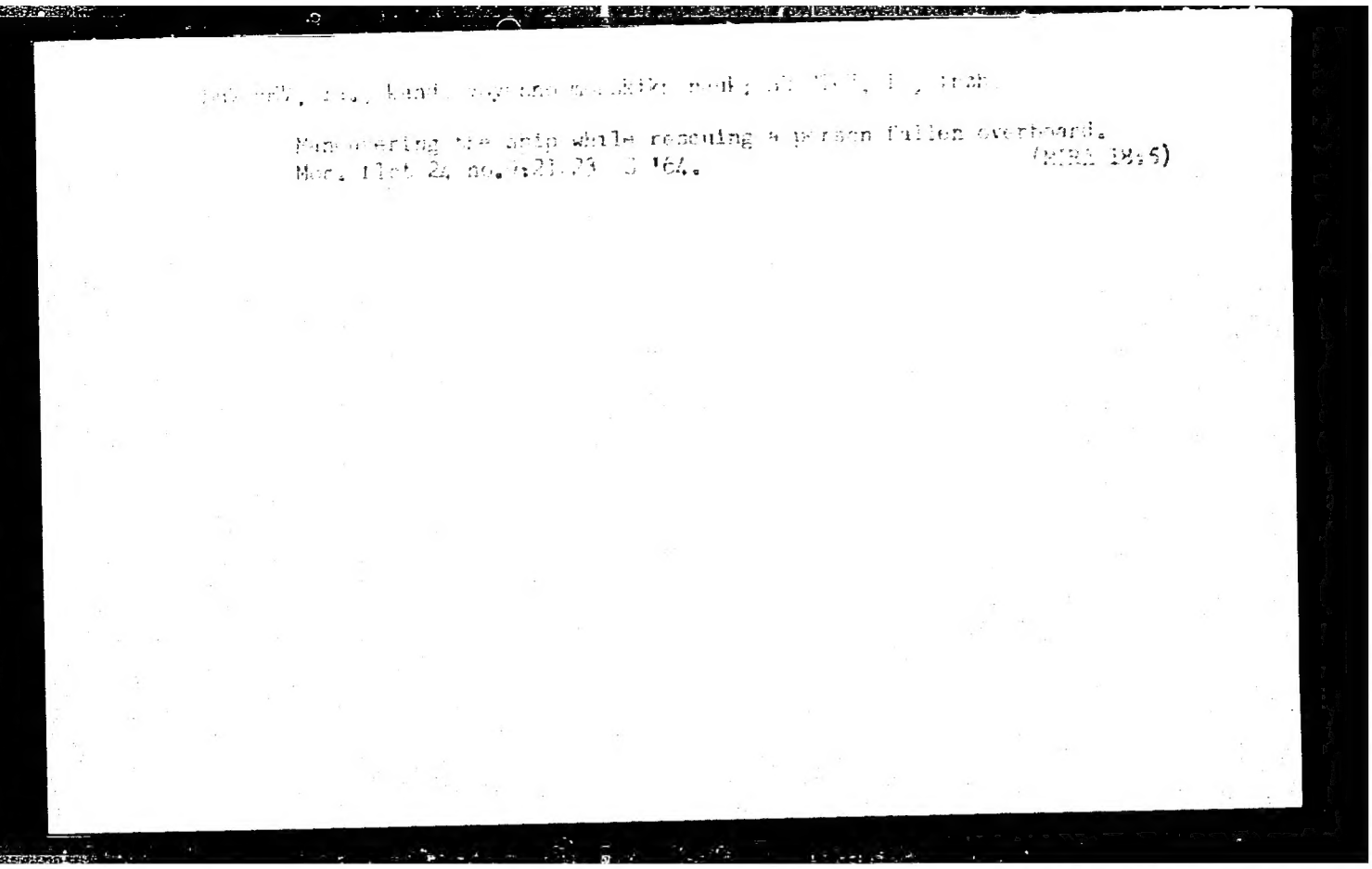
properties in the polymerization of vinyl chloride were investigated. The properties of aqueous solutions of styromal were found to depend strongly on its molecular weight and on the degree of its neutralization. These factors played a substantial part in the use of salts of styromal as the emulsion stabilizer during the polymerization of vinyl chloride. The best results were obtained with a high molecular sample which had been 25% neutralized. The data obtained from the suspension polymerization show that the stabilizing properties of styromal depend considerably on its cross-linking tendencies. Orig. art. has: 4 figures and 1 table.

SUB CODE: 07/ SUBM DATE: 07Oct63/ ORIG REF: 003/ OTH REF: 002

Card 2/2

SHVAREV, Yu., kand.voyenno-morskikh nauk; SHUSTOV, I., mayor

Effectiveness of the maneuver executing the order "man overboard." (MIRA 14:6)
Mor.flot 21 no.3:17 Mr '61.
(Navigation)
(Rescue work)



[illegible], [illegible], heard [illegible] [illegible]; [illegible], [illegible], [illegible].

Man overboard. Ship while rescuing a person fallen overboard.
Mar. Dept. 24 no. 3:21-23 S '64. (MIRA 18:5)

ACC NR: AP6026421 (A,N) SOURCE CODE: UR/0375/66/000/005/0028/0033

AUTHOR: Vestman, O. A. (Captain 1st Rank); Shvarev, Yu. N. (Captain 2d Rank, Candidate of Naval Sciences)

ORG: None

TITLE: Military economic analysis, its tasks and fundamental principles

SOURCE: Morskoy sbornik, no. 5, 1966, 28-33

TOPIC TAGS: government economic planning, economic development, economic organization, economic program, economic system, economics, weapon effect, weapon system, statistic analysis, research program

ABSTRACT: Military economic analysis is still inadequately formulated. There is a need to determine what constitutes a rational system for determining armament costs, based on the particular concepts prevalent in the country in question and on the state of its economy. The military economic problem differs from country to country. Different definitions are discussed with emphasis on the United States version. The formulation of a proper military economic analysis is needed in order to resolve military economic problems. The basic test of such an analysis is that of effectiveness, defined as the ratio of the result (effect) to the expenditures needed to bring them about. In the military field effect is said to be the capacity of the weapon

Card 1/2

Card 2/2

NEPRYAKHIN, G.G., prof. SHVAREVA, A.I., assistent; KRIVTSOV, V.P., ordinator

Clinical aspects and pathomorphology of the first attack of rheumatism in a 14-month-old child. Kaz. med. zhur. no.6: 50-52 N-D '61. (MIRA 15:2)

1. Kafedra gospital'noy pediatrii (zav. - prof. Ye.N.Korovayev), kafedra fakul'tetskoy pediatrii (zav. - prof. K.A.Svyatkina) i kafedra patologicheskoy anatomii (zav. - prof. G.G.Nepryakhin) Kazanskogo meditsinskogo instituta.
(RHEUMATIC FEVER)

BAIK[illegible], L...; [illegible], M.I.; [illegible], A.I.

Importance of the Donaggio reaction in determining the activity of the rheumatic process in children. Nauch. trudy Kaz. gos.med. inst. 14:353-354 '64. (MIRA 18:9)

1. Kafedra gospital'noy pediatrii (zav. - prof. A.Kh.Khamidullina) i nauchno-issledovatel'skaya laboratoriya (zav. - S.V.Senkevich) Kazanskogo meditsinskogo instituta.

SHVAREVA, A.I.; ZUBAIROVA, G.O.

Use of electroencephalography in rheumatism in children. Kaz. med.zhur. no.3:39-41 My-Je '62. (MIRA 15:9)

1. Kafefra gospital'noy pediatrii (zav. - prof. Ye.N.Korovayev [deceased]) i kafedra otolaringologii (zav. - prof. N.N.Lozanov) Kazanskogo meditsinskogo instituta.
(ELECTROENCEPHALOGRAPHY) (RHEUMATIC FEVER)

7

L 5290-66 EWT(m)/EPF(c)/EWP(j)/T RPL WW/RM

ACC NR: AP5022052 SOURCE CODE: UR/0286/65/000/014/0129/0129

AUTHORS: Guseva, I. A.; Mal'kov, N. S.; Makarov, Yu. A.; Kulev, E. A.; Izmaylova, I. S.; Shvareva, G. M.; Khantsis, R. Z.; Gladyshev, A. I.; Perepelkin, V. P.; Nikitina, D. M.; Chekunin, K. I.; Rodzimirskiy, V. V.

ORG: none

TITLE: Method for obtaining copolymers. Class 39, No. 144021

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 14, 1965, 129

TOPIC TAGS: copolymer, pressure casting

ABSTRACT: This Author Certificate presents a method for obtaining copolymers on the basis of methyl methacrylate and esters of acrylic acid by a suspension method. To obtain colorless copolymers suitable for fabricating products by casting under pressure, higher alcohols, e.g., octyl, as a plasticizer, esters of phthalic acid, e.g., dicyclohexyl, as a stabilizer, and derivatives of aminocoumarone, e.g., phenyl ester of (naphtho-1', 2':4', 5')-triazoline (2')-stilbene-2-sulfoacid, as a clarifier are added to the mixture.

SUB CODE: MT, OC/ SUBM DATE: 19May65/ ORIG REF: 000/ OTH REF: 000

Card 1/1 UDC 0901.050:

IL'INSKAYA, I.A.; SHVAREVA, I.Ya.

Miocene flora of Kosov in the cis-Carpathian region. Paleont. sbor. [Lvov] no.1:137-148 '61. (MIRA 15:9)

1. Ukrainskiy nauchno-issledovatel'skiy geologorazvedochnyy institut, L'vov.
(Kosov (Ukraine)--Leaves, Fossil)

SHVAREVA, N.Ya.

Oligocene and Miocene Hystrichosphaeridae in the cis-Carpathian region. Trudy UkrNIGRI no.1:125-129 '59. (MIRA 12:12)
(Carpathian Mountain region--Hystrichosphaeridae)

SHVAREVA, N.Ya.

Cinnamomum finds in the Ciscarpathian Miocene. Dokl.AN SSSR 138 no.5:1172-1174 Je '61. (MIRA 14:6)

1. Ukrainskiy nauchno-issledovatel'skiy geologorazvedochnyy institut. Predstavleno akademikom V.N.Sukachevym.
(Kosov region—Cinnamon, Fossil)

SHVARTSOVA, N.Ya. [Shvar'tsova, N.IA.]

Upper Tortionian flora of Verbovets in the Carpathian Mountain region. Ukr. bot. zhur. 19 no.3:93-103 '62. (MIRA 15:7)

1. Ukrainskiy nauchno-issledovatel'skiy geologorazvedochnyy institut, L'vov.
(Verbovets region—Paleobotany, Stratigraphic)

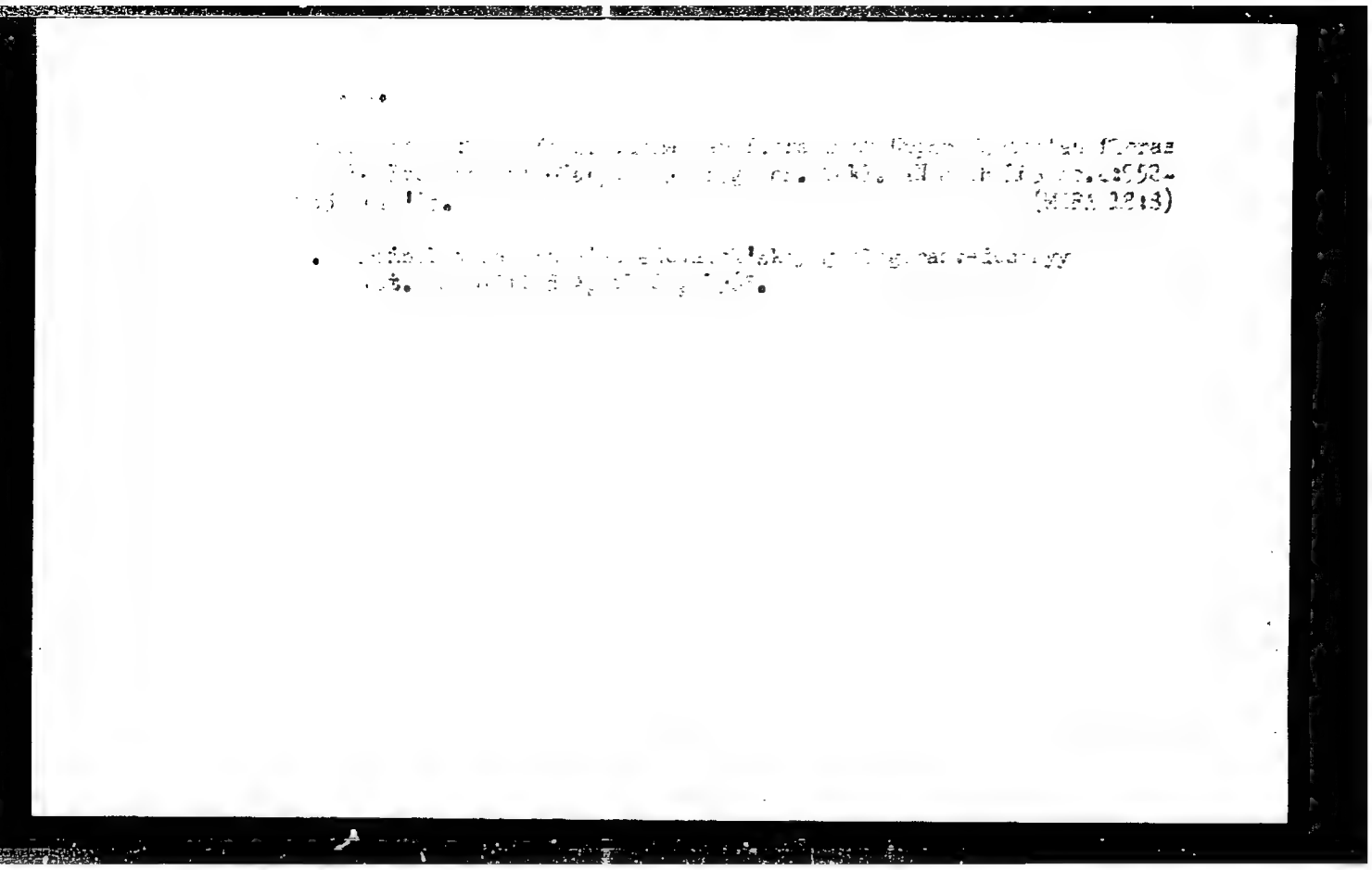
SHVAREVA, N.Ya.

Spore-pollen complexes of the Tortonian sediments in the Lvov region. Trudy UkrNIGRI no.5:292-301 '63. (MIRA 18:3)

SHVARNA, N.Ia.

Genus Fagus from the Lower Sarmatian deposits of Mt. Kortumova (Lvov). Bot. zhur. 49 no.4:523-533 Ap '64. (MIRA 17:5)

1. Ukrainskiy nauchno-issledovatel'skiy geologo-razvedochnyy institut, L'vov.



FEL'DMAN, Ya.I.; SHVAREVA, Yu N.

Climatic conditions in new reclaimed farm lands of northern Kazakhstan and the piedmont regions of the Altai Territory. Izv.AN SSSR. Ser.geog. no.2:43-53 Mr-Ap '55. (MLRA 8:6)

1. Osobaya kompleksnaya ekspeditsiya SOPS AN SSSR po zemlyam novogo sel'skokhozyaystvennogo osvoyeniya Instituta geografii AN SSSR.
(Altai Territory--Meteorology) (Kazakhstan--Meteorology)

IL'ICHEVA, Ye.M.; SHVAREVA, Yu.N.

Use of gradient observations for the examination of the surface air in the beach zone of a resort. Vop.kur.fizioter. i lech.fiz.kul't. 21 no.2:27-29 Ap-Je '56. (MLRA 9:9)

1. Iz TSentral'nogo instituta kurortologii i Instituta geografii AN SSSR.
(HEALTH RESORTS, WATERING PLACES, ETC.) (AIR)

SHVAREVA, Yu. N.

3(5) PHASE I BOOK EXPLOITATION SOV/1781

Akademiya nauk SSSR. Institut geografii.

Voprosy fizicheskoy geografii (Problems in Physical Geography) Moscow, Izd-vo AN SSSR, 1958. 370 p. Errata slip inserted. 1,500 copies printed.

Resp. Ed.: G.D. Rikhter, Doctor of Geographical Sciences, Professor; Ed. of Publishing House: D.N. Tugarinov; Tech. Ed.: N.D. Novichkova.

PURPOSE: This book is intended for meteorologists, hydrologists, pedologists, geologists, and students of physical geography in general.

COVERAGE: These articles are dedicated to Academician A.A. Grigor'yev in commemoration of his seventy-fifth birthday anniversary. They treat problems in physical geography pertaining to the northern regions of the USSR and particularly those of Yakutia. The majority of the articles are devoted

Card 1/4

to questions of latitudinal and vertical zonation and contain much factual material on the relationship between the various geographic components. Practical conclusions and meteorological principles are cited. Each article is accompanied by maps, photographs and numerous bibliographic references.

TABLE OF CONTENTS:

IL'ICHEVA, Ye.M.; SHVAREVA, Yu.N.

Comparative evaluation of methods for characterizing heat sensitivity in man. Vop. kur., fizioter. i lech. fiz. kul't. 26 no. 2:107-111 Mr-Ap '61. (MIRA 14:4)

1. Iz laboratorii kurortnoy klimatologii (rukovoditel' L.A. Chubukov) TSentral'nogo instituta kurortologii i Instituta geografii AN SSSR.
(CLIMATOLOGY, MEDICAL) (BODY TEMPERATURE)

IL'ICHEVA, Ye.N., nauchn. sotr.; SIVAREVA, Yu.N., nauchn. sotr.; KURASHOV, S.V., red.; GOL'DFAYL', L.G., red.; POSPELOVA, G.N., red.; Prinimali uchastiye: BAKHMAN, V.I., kand. khim. nauk, red.; IVANOV, V.V., kand. med. nauk, red.; KARAYEV, R.G., kand. med. nauk, red.; LARICHEV, L.S., red.; NEVRAYEV, G.A., red.; OPPENGEYM, D.G., kand. med. nauk, red.; POLTORANOV, V.V., red.; CHUBUKOV, L.A., doktor geogr. nauk, red.; VUL'FSON, I.Z., red.; KUZ'MINA, N.S., tekhn. red.

[Health resorts of the U.S.S.R.]Kurorty SSSR. Moskva, Medgiz, 1962. 797 p. (MIRA 15:11)
(HEALTH RESORTS, WATERING PLACES, ETC.)

BAYBAKOVA, Ye.M.; CHUBUKOV, L.A.; [illegible]EVA, Yu.N.

Evgraf Evgrafovich Fedorov, 1880-1965; obituary. Izv. AN SSSR. Ser. geog. no.5:157-158 S-O '65. (MIRA 18:10)

SHVAREVA, Z.

Evgenii Mitrofanovich Kurdinovskii; on the 25th anniversary of his death. Akush. i gin. 34 no.4:120-121 Jl-Ag '58 (MIRA 11:9)
(KURDINOVSKII, EVGENII MITROFANOVICH, 1874-1933)

SH / [illegible] 600

1. KOLESNIKOV, L. G., SHVARD'AN, A. G.

2. USSR (600)

"On the Alkaloids of Sedum Acre", Zhur, Obshch. Khim, 9, No. 23, 1939. Lab. of Photochemistry, Ukraninish Inst. of Experimental Pharmacy, Kar'kov. Received 21 June 1939.

9. [redacted] Report U-1626, 11 Jan 1952.

MIKULIN, Boris Pavlovich; SHVARKOV, P.M.; GNEZDILOV, V.B., red.; red.; YEZDOKOVA, M.L., red. izd-va; ISLENT'YEVA, P.G., tekhn. red.

[Surveying designing, and planning of industrial railroads]Izyskaniia i proektirovanie zheleznykh dorog promyshlennykh predpriiatii. Moskva, Metallurgizdat, 1962. 271 p. (MIRA 15:12)
(Railroads, Industrial--Construction)

ROSSOVSKIY, L.N.; SHVARKOV, S.L.

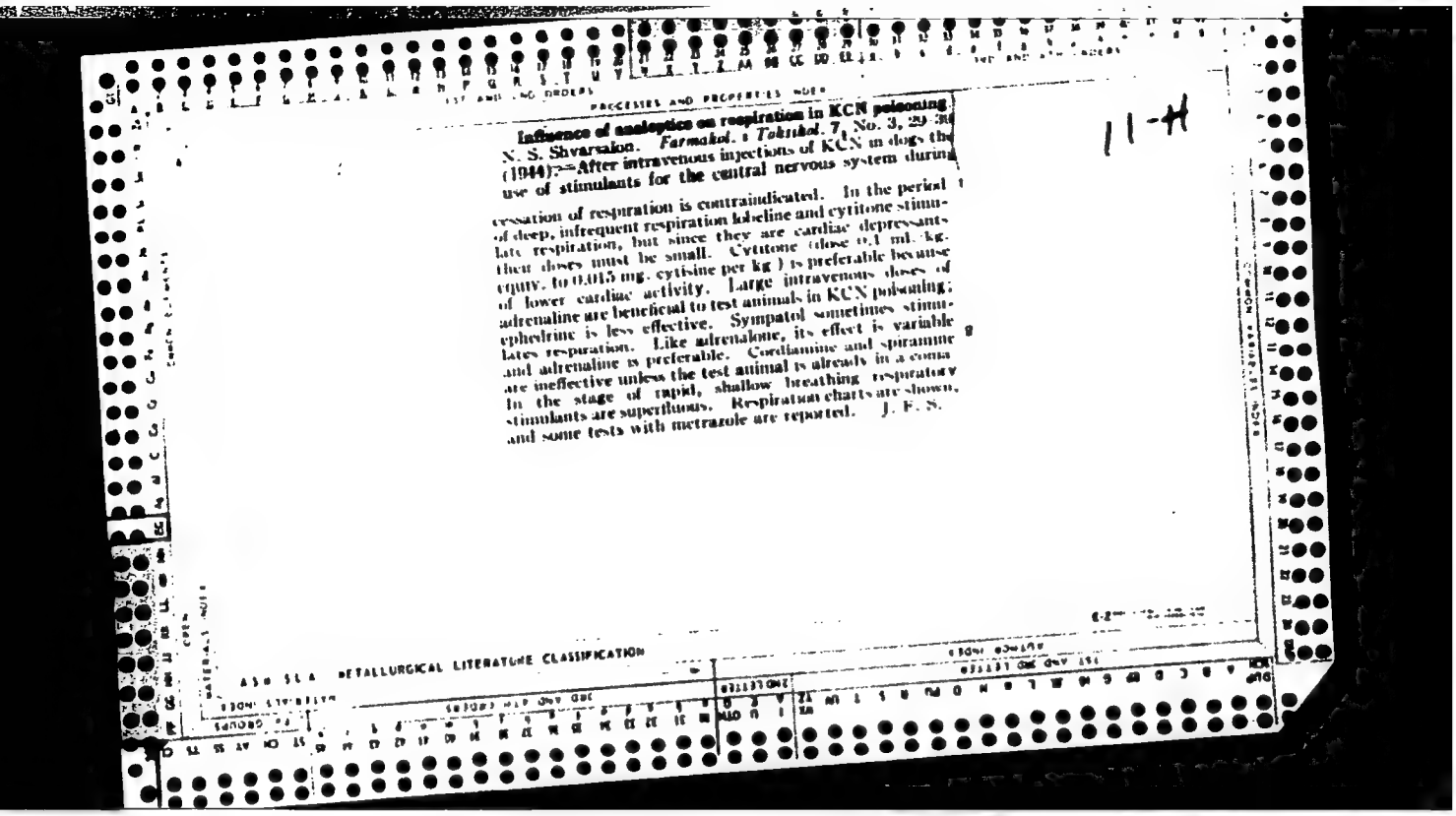
Influence of depth on the formation of granite-pegmatites.
Geol. rud. mestorozh. 6 no.5:30-39 S-O '64. (MIRA 17:12)

SH'ARSALON, N. S.

"The Part Played by the Vascular Reflexogenic Zones in the Alterations of Respiration Caused by Injection of Adrenalin," Farmakol. i Toksikol., 4, No. 2, 1941. Chair of Pharmacology, Head--Prof. W. J. Skworzob, of the 2nd. Med. Inst., Moscow, 1941.

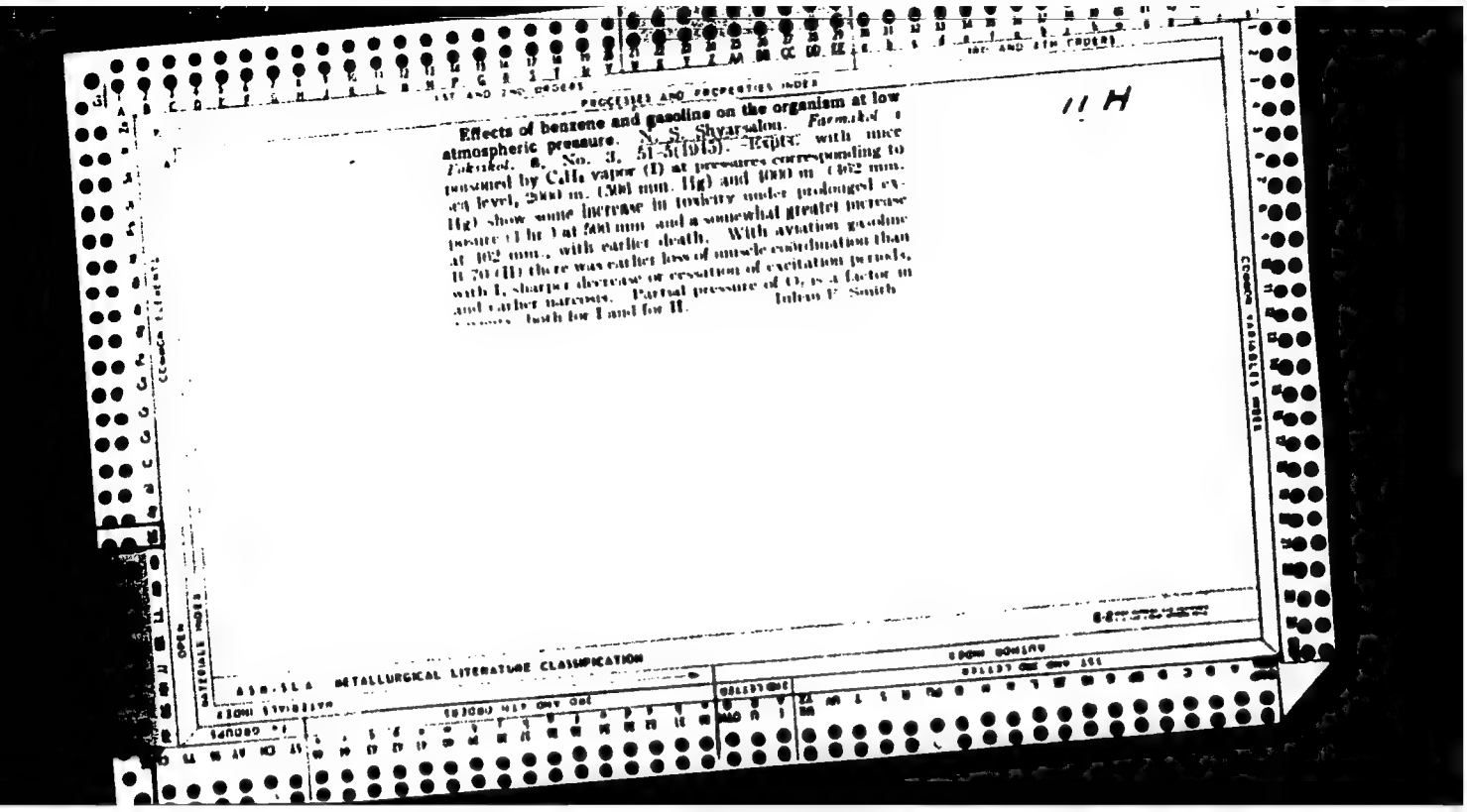
SHVARSALON, M.

"Effect of Injection of Drugs into Arteries and Veins," Farmakol. i Toksikol., 5, No. 1-2, 1942. Chair of Pharmacology of the 2nd. Medical Institute, Moscow, -1942-.



Influence of analeptics on respiration in KCN poisoning. N. S. Shvarsalon. *Farmakol. i Toksikol.* 7, No. 3, 29-36 (1944).—After intravenous injections of KCN in dogs the use of stimulants for the central nervous system during cessation of respiration is contraindicated. In the period of deep, infrequent respiration lobeline and cytitone stimulate respiration, but since they are cardiac depressants their doses must be small. Cytitone (dose 0.1 ml./kg. equiv. to 0.015 mg. cytisine per kg.) is preferable because of lower cardiac activity. Large intravenous doses of adrenaline are beneficial to test animals in KCN poisoning; ephedrine is less effective. Sympatol sometimes stimulates respiration. Like adrenalone, its effect is variable and adrenaline is preferable. Cordiamine and spiramine are ineffective unless the test animal is already in a coma. In the stage of rapid, shallow breathing respiratory stimulants are superfluous. Respiration charts are shown, and some tests with metrazole are reported. J. F. S.

11-H



11 H

Effects of benzene and gasoline on the organism at low atmospheric pressure. N. S. Shvarsalon. *Farmakol i Toksikol.* 8, No. 3, 51-5(1945). Expts. with mice poisoned by CaI_2 vapor (I) at pressures corresponding to sea level, 2000 m. (300 mm. Hg) and 4000 m. (462 mm. Hg) show some increase in toxicity under prolonged exposure (1 hr.) at 500 mm. and a somewhat greater increase at 462 mm., with earlier death. With aviation gasoline II 70 (II) there was earlier loss of muscle coordination than with I, sharper decrease or cessation of excitation periods, and earlier narcosis. Partial pressure of O_2 is a factor in both I and/or II. Julian F. Smith

METALLURGICAL LITERATURE CLASSIFICATION

SHVARSALON, N.S.

Hematogasometric analysis for studying the effects of medicines on respiration. Report no.1. Effect of ephedrine on respiration. Farm.i toks. 10 no.4:9-16 Jl-Ag '47. (MLRA 7:2)

1. Iz kafedry farmakologii II MGMI im. I.V.Stalina (zaveduyushchiy - deystvitel'nyy chlen Akademii meditsinskikh nauk zasluzhennyy deyatel' nauki professor V.I.Skvortsov).

(Ephedrine--Physiological effect)

SHVARTSMAN, M. S.

"Change in the Gases of the Blood Due to Intravenous Injections of Ephedrine, Citatone, Lobeline, Corazol, and Cordi-Amine." Sub 15 Oct 51, Second Moscow State Medical Inst imeni I. V. Stalin.

Dissertations presented for science and engineering degrees in Moscow during 1951.

SO: S um. No. 480, 9 May 55

SHVARSALON, M. S.

Effect of analeptics on blood ferments. Uchen. zapski. vtor. moskov. med. Inst. Stalina 1:139-145 1951. (CIML 21:3)

1. Assistant. 2. Department of Pathological Physiology (Head -- Honored Worker in Science Prof. G. P. Sakharov).

SHVARSALON, N.S.

Pharmacologic study on respiration according to Pavlovian theory on nervosism. Tr. Vsesoius. obsh. fiziol. no. 1:129-130 1952. (CLML 24:1)

1. Delivered 28 April 1950, Moscow.

USSR / Pharmacology and Toxicology. Anesthetics. V-1

Abs Jour : Ref. Zhur - Biologiya, No 17, 1958, No. 80474

Author : Shvarsalon, N. S.
Inst : Crimean Medical Institute
Title : Influence of Soporific Substances on Higher Nervous Activity

Orig Pub : Tr. Krymsk. med. in-ta, 1957, 18, 150-152

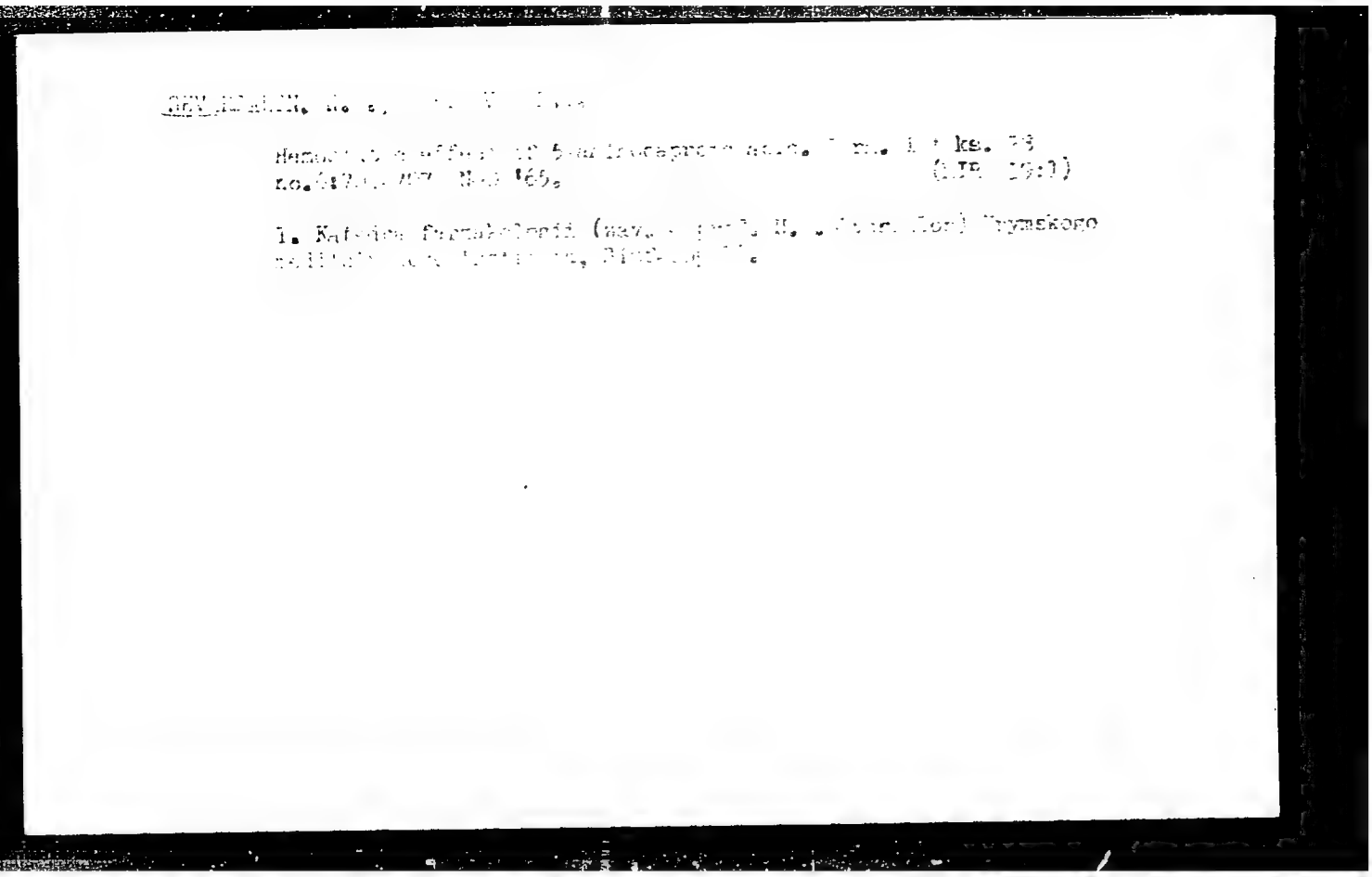
Abstract : To evaluate the influence of soporific agents on conditioned reflex activity, the author utilizes the motor-food method on rats and mice. The most useful method for determining the degree of habit formation in a soporific is the actograph, with a registor of the animals movements on a kymograph. Of the soporifics studied, barbamil and luminal do the most harm to the CNS, and veronal, medinal and, seemingly, nembutal do the least harm (during long use). Chloralhydrate, in view of its rapid habit forming,

Card 1/2

SHVARSALON, Nikolay Semenovich, prof.; CHISTYAKOVA, N.P., red.; MIRONOVA, A.M., tekhn. red.

[Handbook on practical tasks in making prescriptions] Rukovodstvo k prakticheskim zaniatiiam po retsepture. Moskva, Medgiz, 1962. 122 p. (MIRA 15:7)

(PRESCRIPTION WRITING)



USSR/Medicine - Insecticides Oct 51

"Insecticidal Effect of Soap and Oil Paint When Mixed With Hexachlorocyclohexane," N. V. Gemnov, E. I. Shvarsshteyn, R. T. Panin, Kuybychev Oblast Pub Health Div and Oblast Sanitary Epidemiol Sta

"Gig i San" No 10, pp 41-43

Soap mixed with hexachlorocyclohexane without any other admixt can be used successfully and economically to combat lice and as a preventive against them. Linens can be washed in a 3-5% emulsion of this soap in hot water to sterlize them. The method is simple and can be used under all

1/2

USSR/Medicine - Insecticides (Contd) Oct 51

conditions, because no great amt of disinfectant is needed. Rinsing and ironing lessens the activity of the insecticide in the linen. The effect of the disinfectant in the linen lasts more than 4 mos in the laboratory and 3 mos when repeated washing is necessary. Without any other admixts the soap retains its insecticidal effect for 5½ mos.

Surface oil paints with an admix of 10 and 5% hexachlorocyclohexane have a strong insecticidal effect. This effect remains for 2 mos. Hexachlorocyclohexane mixed with oil-paint loses its odor to a considerable extent.

1/2

L 61055-65 EPF(c)/EWP(j)/EWT(m)/T Pc-4/Pr-4/Ps-4 RPL RM/WW

ACCESSION NR: AP5016509 UR/0190/65/007/006/1056/1059
678.01 : 53+678.76

AUTHORS: Makarova, L. V.; Shvarts, A. G.; Zakharov, N. D.; Priborets, A. M.

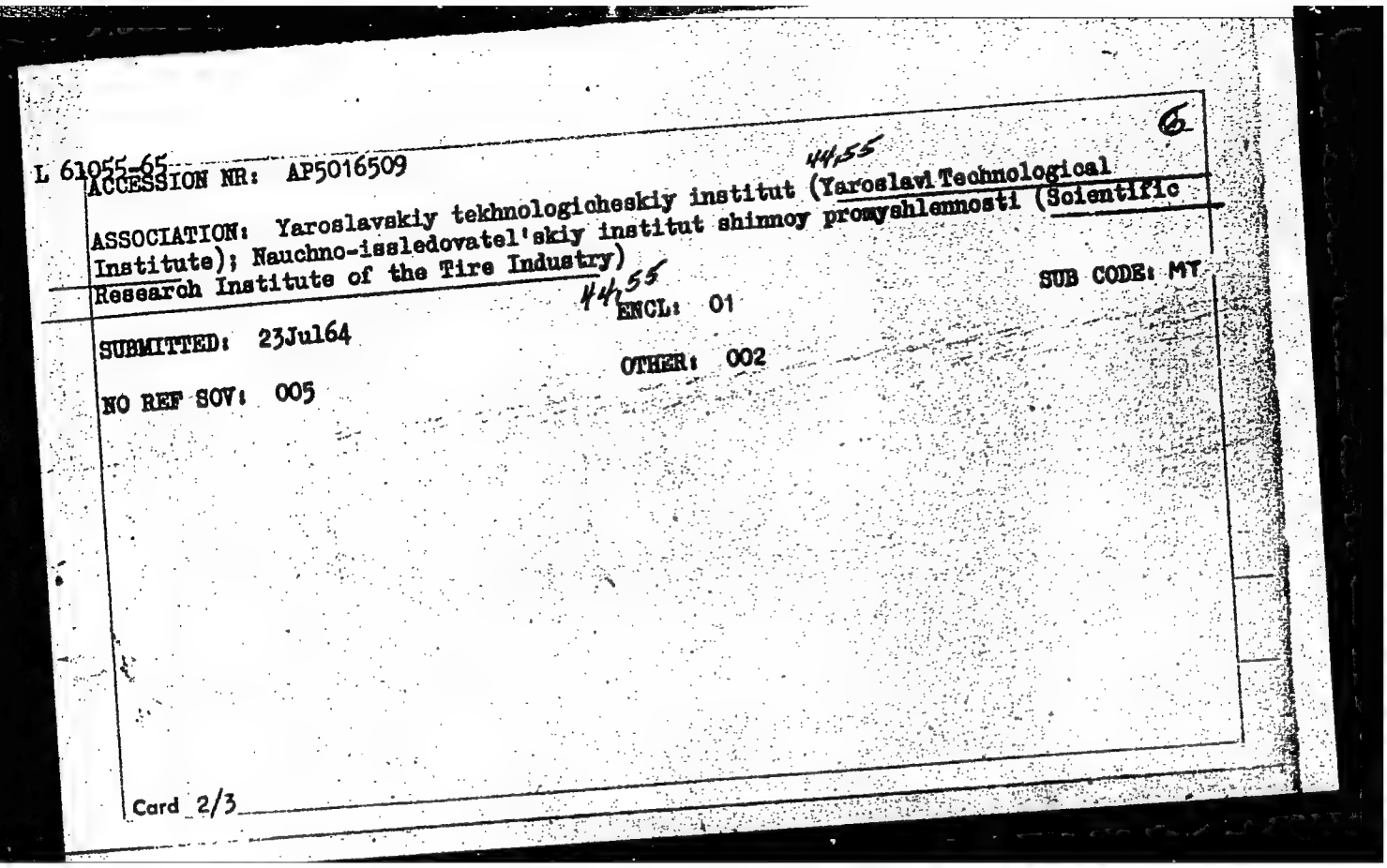
TITLE: Determination of the cohesion energy density of some synthetic rubbers with functional groups

SOURCE: Vysokomolekulyarnyye soyedineniya, v. 7, no. 6, 1965, 1056-1059

TOPIC TAGS: synthetic rubber, cohesion energy, tensile strength, tensile stress, copolymer, methylmethacrylate

ABSTRACT: The investigation was undertaken to characterize the intermolecular interaction in a number of synthetic rubbers containing functional groups in terms of their cohesion energy density. The compounds studied were: chlorosulfopolyethylene and the copolymers of methyl methacrylate with divinyl. Vulcanization was carried out at 143C for 50 minutes. The cohesion energy density was derived from the measured change in the equilibrium modulus of elasticity resulting from the swelling action of vaseline oil and dibutyl phthalate on the specimen, as suggested by A. G. Shvarts (Zh. fiz. khimii, 32, 718, 1958). The experimental results are summarized in Fig. 1 on the Enclosure. Orig. art. has: 4 tables and 1 graph.

Card 1/3



L 61055-65
ACCESSION NR: AP5016509 44155

ASSOCIATION: Yaroslavskiy tekhnologicheskiy institut (Yaroslavl Technological Institute); Nauchno-issledovatel'skiy institut shinnoy promyshlennosti (Scientific Research Institute of the Tire Industry)

SUBMITTED: 23Jul64 ENCL: 01 SUB CODE: MT

NO REF SOV: 005 OTHER: 002

Card 2/3

L 61055-65

ACCESSION NR: AP5016509

ENCLOSURE: 01

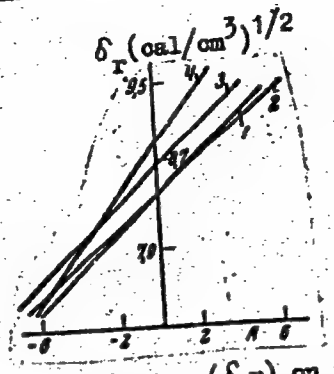


Fig. 1. Dependence of the solubility parameter (δ r) on the magnitude of $\sqrt{(\mu - \mu_s)/\delta r} \times 10^2$(A): 1 - SKMVP - 15ARP (copolymer of methyl methacrylate and 2-methyl-5-vinyl peridine), 2 - SKMMA - 30A, 3 - SKMMA - 50A (copolymers of methyl methacrylate and divinyl containing 30 and 50% of the former); 4 - khaypalon-20 (chlorosulfopolyethylene). Where μ is a constant characterizing the interaction between the rubber and dissolving solvent, μ_s = 0.25 for all rubbers and δr molar volume of the solvent.

Card 3/3 KC

67749

IP.9100 SOV/126-8-5-1/29

AUTHORS: Galishev, V.S., Orlov, A.N. and Shvarte, I.A.

TITLE: An Estimate of the Conditions Necessary for the Autoradiographic Detection of Adsorptional Irregularities in Concentration

PERIODICAL: Fizika metallov i metallovedeniye, Vol 8, 1959, Nr 5, pp 641-647 (USSR)

ABSTRACT: Arkharov et al (Ref 1) have discussed the autoradiographic method employing β-active isotopes. They have considered a specimen in the form of a plane-parallel plate having a thickness b in the direction of the y axis, and infinite in the direction of the x and z axes. A part of the plane x=0, defined by the planes y=0 and y=b, forms an infinitely thin intercrystallite zone on which β-active atoms become adsorbed. It is then necessary to calculate the electron density $F(\tau,r)$ for electrons having energy E. Bethe et al (Ref 2) have shown that if the condition given by Eq (1) is satisfied, then the determination of the function F, which can be found by solving a diffusion equation, is particularly simple. In Eq (1), $\lambda(E)$ is the mean free path of an electron having energy E (Ref 3). Under this condition,

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An Estimate of the Conditions Necessary for the Autoradiographic Detection of Adsorptional Irregularities in Concentration

the electron density emitted by the intercrystallite zone near the surface of the specimen and at the distance x from the zone, is given by Eq (2), where s_o is the number of electrons emitted per unit area of the zone. The electron density emitted uniformly over the volume of a grain by distributed sources, and measured at the surface of the specimen, is given by Eq (3), where v_o is the number of electrons emitted per unit volume of the grain. The spectral density of the electron flux at y=o and y=b is given by Eq (4). Galishev et al (Ref 3) have treated the problem more exactly and considered the systems Al+0.1%Ag^{110} and Cu+0.1% Sb^{124}. They assumed that the concentration of the active component in the intercrystallite zone is 10% and that the criterion for the detection of this zone is that the difference between the blackening of the photographic plate due to the zone and the background should be greater than 0.1 (Eq 5). The blackening of the photographic plate is proportional to the radiation dose D which is given by Eq (6) where λ is the absorption coefficient of the

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An Estimate of the Conditions Necessary for the Autoradiographic Detection of Adsorptional Irregularities in Concentration

photographic emulsion and $c'(E)$ is the probability of absorption of an electron with energy E during the formation of the latent image. The present paper gives a critical discussion of the criteria derived in the above papers and takes into account the form of the function $n(x)$ and the dependence of c on energy. A condition for optimum blackening of the photographic plate is derived (Eq 13). If the function $c(E)$ is assumed to be linear (there are no experimental data to contradict this) then the condition takes the form of Eq (14'). The integrals involved in this condition have been computed by the authors for electrons between 0.02 and 0.35 Kev for aluminium, copper and lead, and specimen thicknesses of 10^{-4}, 10^{-3} and 10^{-2} cm. The results obtained are summarized in one figure and two tables. There are 9 references, of which 3 are English and 6 are Soviet.

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677.9

SOV/126-6-5-3/29

An Estimate of the Conditions Necessary for the Autoradiographic Detection of Adsorptional Irregularities in Concentration

ASSOCIATION: Institut fiziki metallov AN SSSR
(Institute of Physics of Metals, Academy of Sciences of the USSR)

SUBMITTED: July 28, 1959

Card 4/4

S/520/59/000/022/005/021
E032/E514

AUTHORS: Galishev, V.S. and Shvarte, I.A.

TITLE: Autoradiographic Detection of Adsorptional Concentration Irregularities in Alloys

PERIODICAL: Akademiya nauk SSSR. Ural'skiy filial, Sverdlovsk. Institut fiziki metallov. Trudy, no.22, 1959, pp.37-49

TEXT: A large number of papers have appeared on the nonuniform distribution of alloy components in which the distribution was investigated by the autoradiographic method, using radioactive tracers (A. Kohn, Ref.1; S. Z. Bokshteyn et al., Ref.2; M.Ye.Drits et al., Ref.3 and S. F. Yur'yev and B. I. Bruk, Ref.4). In all these papers the nonuniform distribution of the alloy components was detected by introducing radioactive traces into the alloy or by activating the alloy with subsequent autoradiographic recording of the labelled component. V. I. Arkharov (Refs.5 and 6) working at the Laboratoriya diffuzii Instituta fiziki metallov AN SSSR (Diffusion Laboratory of the Institute of Physics of Metals, AS USSR) showed that equilibrium irregularities in the concentration of dissolved impurities exist in alloys and are associated with structural irregularities of the material. The formation of such

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S/520/59/000/022/005/021
E032/E514

Autoradiographic Detection of Adsorptional Concentration Irregularities in Alloys

concentration irregularities is due to the fact that the excess energy of structural irregularities and, in particular, intercrystallite transition zones, is considerably reduced when these irregularities are enriched with one of the components of the alloy. This leads to the appearance of very small regions of modified concentration (100 to 1000 Å) and the change in the concentration in these regions as compared with the average composition of the alloy may be of one or two orders of magnitude (V. I. Arkharov, N. N. Skornyakov, Ref.7). The phenomenon of internal adsorption has been investigated by V. I. Arkharov (Ref.8) from the point of view of the possibility of its autoradiographic detection. In the present paper the problem is considered on the basis of the following simplified model. The specimen under investigation is in the form of a plane-parallel plate of finite thickness b in the y direction and lying on the xz plane. The intercrystallite zone is assumed to lie on the x = 0 plane and other intercrystallite zones are taken to be sufficiently distant to be ignored. Moreover, it is assumed that the concentration of the radioactive atoms in

Autoradiographic Detection of Adsorptional Concentration Irregularities in Alloys

the specimen as a whole was only a few tenths of a percent, while the concentration in the intercrystallite zone was of the order of 10%. The electron density $F(x,y,z,\tau)$ at a point (x,y,z) satisfies the equation

$$\frac{\partial F}{\partial \tau} = \Delta F + S\,(x,y,z)\,\delta(\tau) \qquad (1)$$

where S is the density of electrons emitted by the available sources and $\delta(\tau)$ is the Dirac δ-function. Eq.(1) is solved subject to the boundary conditions

$$-\frac{\partial F}{\partial y} + hF = 0 \;(y = 0); \quad \frac{\partial F}{\partial y} + hF = 0 \;(y = b) \qquad (2)$$

where the parameter h is a proportionality coefficient. When $hb \ll \pi^2/2$, the solution of Eq.(1) is quite simple (Arkharov, Ref.8). Moreover, if the electrons are emitted only by the intercrystallite zone, which is looked upon as a plane isotropic source of electrons, then on the surface of the specimen

Autoradiographic Detection of Adsorptional Concentration Irregularities in Alloys

$$F(x, 0, \tau) = F(x, b, \tau) = \frac{S_0}{\sqrt{2\tau}\sqrt{2\pi}} \exp\left(\frac{-2h\tau}{b}\right) \cdot \exp\left(-\frac{x^2}{2\left(\sqrt{2\tau}\right)^2}\right), \quad (4)$$

If the electrons are emitted by radioactive atoms, which are uniformly distributed in the specimen as a whole, then in the absence of the intercrystallite zone one has for any x on the surface of the specimen

$$F'(0,\tau) = F'(b,\tau) = \frac{v'_0}{\sqrt{2\pi}} \exp\left(-\frac{2h'\tau}{b}\right) . \quad (5)$$

The total electron density on the surface of the specimen is then given by the sum of the contributions represented by Eqs.(4) and (5). The ratio of the maximum electron density (at the point x=0) to the "background" electron density is given by

Autoradiographic Detection of Adsorptional Concentration Irregularities in Alloys

$$\frac{F(0,b,\tau)}{F'(b,\tau)} = \frac{S_o}{v_o} \frac{1}{\sqrt{2\tau}} \qquad (6)$$

where S_o and v_o is the number of electrons emitted by the sources per second in the intercrystallite zone and the specimen as a whole, respectively. In Ref.8 only qualitative conclusions were obtained about the intensity of the β-radiation on the surface of the specimen and, moreover, the magnitude of the coefficient h in Eq.(2) was not estimated. In the present paper the coefficient h is computed and an attempt is made to estimate the possibility of detection of intercrystallite boundaries in some specific cases. It is shown that the parameter h is inversely proportional to the mean free path and thus plays the role of an absorption coefficient for the electrons. It is a function of the energy of the electrons and the properties of the scattering material. In particular, it is shown that

$$h(E) = \frac{3}{\lambda(E)}. \qquad (18)$$

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The theoretical values of h for electron energies between 0.051 MeV and 10.22 MeV are given in Table 1 for Al, Cu and Pb. The calculated values of h are based on data given by H.A.Bethe et al. (Ref.9). A calculation is then carried out of the total number of electrons leaving a unit area of the surface of the specimen per unit time due to the electrons emitted by the specimen as a whole ("background") and the electrons emitted by the intercrystallite zone. It is assumed that the parameter h is constant. The ratio of the latter two quantities at x = 0, which is denoted by Δ is then shown to be given by

$$\Delta = \frac{s_0}{v_0}\frac{\sqrt{\pi}}{\sqrt{h}}\cdot\frac{\sum_i g_i \sqrt{h_{wi}}\,\Phi\left(2\sqrt{\frac{h_{wi}r_{wi}}{h}}\right)}{\sum_i g_i\left(1-e^{-\frac{2h_{wi}r_{wi}}{h}}\right)} \qquad (31)$$

where g_i refers to the fraction of the electrons emitted by the

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Autoradiographic Detection of Adsorptional Concentration Irregularities in Alloys

i-th line and h_{oi} is the corresponding value of h (assumed constant). The values of Δ are then calculated for the following two specific cases:
Case I. Specimen as a whole 99.9% Al + 0.1% Ag^{110}; intercrystallite zone 90% Al + 10% Ag^{110}.
Case II. Specimen as a whole 99.6% Cu + 0.4% Sb^{124}; intercrystallite zone 90% Cu + 10% Sb^{124}.
It is shown that the parameter Δ can be used as a criterion for deciding whether a particular irregularity can be detected. If Δ 1.1-1.5, then a thin layer enriched with radioactive atoms can be detected by the autoradiographic method. However, the value of b must be sufficiently small. For example, in the case of the Al-Ag alloy, the thickness should be less than 10 μ, while for the Cu-Sb alloy it should be smaller still. The best results can be obtained if the following points are observed: a) the specimen thickness should be as small as possible, b) elements with low Z numbers should be used, c) β-particles employed should have as low an

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E032/E514

Autoradiographic Detection of Adsorptional Concentration Irregularities in Alloys

energy as possible and d) the regions of internal adsorption should have as large dimensions as possible. Acknowledgments are expressed to A. N. Orlov for his interest in this work. There are 1 figure, 5 tables and 19 references: 14 Soviet and 5 non-Soviet.

Table 1

Values of $h(E_o)$, cm^{-1}

Scattering material	Values of E_o, MeV							
	0.051	0.102	0.255	0.511	1.022	2.555	5.110	10.22
Al	$1.16 \cdot 10^3$	$3.68 \cdot 10^2$	$1.07 \cdot 10^2$	$2.7 \cdot 10$	9.55	2.24	0.945	0.27
Cu	$8.33 \cdot 10^3$	$2.6 \cdot 10^3$	$7.05 \cdot 10^2$	$1.91 \cdot 10^2$	$6.7 \cdot 10$	1.53·10	6.3	1.82
Pb	$3.1 \cdot 10^4$	$9.25 \cdot 10^3$	$2.0 \cdot 10^3$	$6.82 \cdot 10^2$	$2.27 \cdot 10^2$	5.31·10	1.83·10	5.41

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GALISHEV, V.S.; ORLOV, A.N.; SHVARTS, I.A.

Autoradiographic revealing of heterogenous adsorption concentrations.
Issl. po zharopr. splav. 6:158-162 '60. (MIRA 13:9)
(Autoradiography) (Crystal lattices)

S/126/60/010/003/008/009/XX
E201/E391

AUTHORS: Orlov, A.N. and Shvarte, I.A.

TITLE: Mechanical Stability of Large-angle Dislocation Boundaries Between Grains

PERIODICAL: Fizika metallov i metallovedeniye, 1960, Vol. 10, No. 3, pp. 492 - 494

TEXT: Electron-microscopic observations (Ref. 1) showed that in some cases large-angle grain boundaries in metals possess fine structure in the form of several parallel dislocation walls. This observation is confirmed by indirect information from internal adsorption (Ref. 2) which indicates that grain boundaries are defect regions of several hundred angstrom width. The present note gives equations for equilibrium distances between dislocation walls for any number (n) of such walls. The case of $n = 5$ is discussed in detail and the energies of grain boundaries meeting at a given angle are compared for $n = 1$, 3, and 5. The calculations show that, for a given angle between boundaries, the boundary energy rises with increase of n. Assuming that the dislocation model of

S/126/60/010/003/008/009/XX
E201/E391

Mechanical Stability of Large-angle Dislocation Boundaries Between Grains

grain boundaries is applicable for dislocations closer to one another than 10 interatomic distances, the maximum angles between neighbouring grains are found to be $5^{\circ}45'$, $7^{\circ}27'$ and $12^{\circ}35'$ for n = 1, 3 and 5, respectively. The authors consider also dislocation walls where the dislocation density varies from wall to wall. The paper is entirely theoretical. Acknowledgment is made to Yu. A. Shakov for communicating the results of his work (Ref. 1) before publication.
There are 6 references: 2 Soviet and 4 non-Soviet.

ASSOCIATION: Institut fiziki metallov AN SSSR (Institute of Physics of Metals of the AS USSR)

SUBMITTED: May 3, 1960

Card 2/2

SPVARTIN, S.N.

Transports over road networks with allowance for losses. Dokl. AN SSSR 141 no.6:1324-1327 D '61. (MIRA 14:12)
(Functional analysis) (Cybernetics)

SHVARTS, A., kand.tekhn.nauk; VESHNIKOV, A., inzh.

For inventors of rotary engines. Izobr. i rats. no.7:39-40 and 3 of cover Jl '61. (MIRA 14:6)

(Gas and oil engines)

SHVARTS, A., kandidat na tekhnicheskite nauki; VESHNIKOV, A., inzh.; KOMOV, S.

On the rotor motors with internal combustion. Ratsionalizatsiia 11 no.9:13-17 '61.

1. Direktor na Vseuiuzniia nauchno-tekhnicheski institut pri Durzhavnata patentna ekspertiza(for Komov)

(Gas and oil engines)

SHVARTS, Anatoliy

Soldiers of science. Zdorov'e 6 no.5:28-29 My '60. (MIRA 13:6)

(PHYSICIANS, RUSSIAN)

SHVARTS, A.

Brave heart. Tekh.mol. 28 no.7:24-25 '60. (MIRA 13:8)
(TRANSPLANTATION OF ORGANS, TISSUES, ETC.)
(CANCER RESEARCH)

SHVARTS, A.

Investigating the secrets of muscles. Znan.sila 36 no.11:28-31 N '61. (MIRA 14:11)

(MUSCLES) (ELECTROPHYSIOLOGY)

SHVARTS, A.; IVANOV, B.

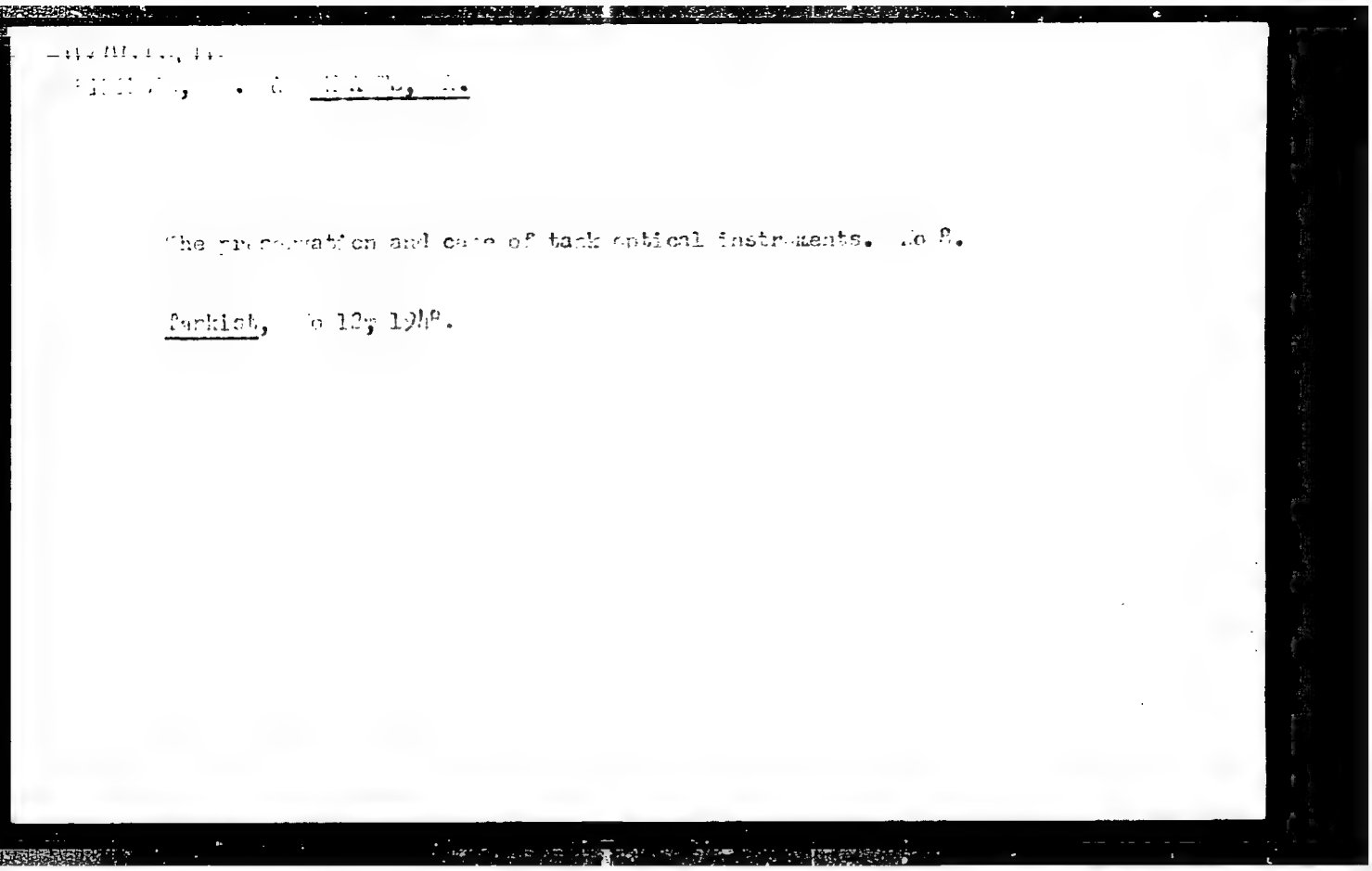
"Investigating materials used in making shoes" by M.G.Liubich. Reviewed by A.Shvarts, B.Ivanov. Kozh.-obuv.prom. no.4:36-38 Ap '59. (MIRA 12:7)

(Boots and shoes--Testing)
(Liubich, M.G.)

MILITA, L. SHARTS, A.

The maintainance of tank guns. No 6.

Tankist, No 12, 1948.



The preservation and care of tank optical instruments. No 8.

Parkist, [illegible] 12; 19[illegible].

SHVARTS, A.

A study of tank armament. No 10.

Tankist, No 12, 1948.

SHWARTS, A.

Winter servicing of tank armament. No 11,

Tankist, No 12, 1948.

SHVARTS, A. (Pl'zen', Chekhoslovatskaya Sotsialisticheskaya Respublika)

Thrombotic thrombocytopenic purpura (Moschcowitz's disease). Arkh. pat. no.10:29-37 '64. (MIRA 18:10)

1. Institut patologicheskoy anatomii imeni Shikla (dir.- prof. I. Vanek) Karlova universiteta v Pl'zene.

S.A.
Sect. A

Magnetism

538.114

5994. Calculation of the magnetic skin-effect in Permalloy sheet and determination of its characteristic parameters. A. A. Rukhadze. *Zh. Tekh. Fiz.*, 21, 1293–300 (No. 11, 1951) *In Russian.*

The investigation of the behaviour of ferromagnetic cores in weak fields is usually based on an empirical relation between flux density and field strength, and for a sinusoidal field variation this formula permits of deriving approximations for effective permeability and loss resistance for a toroidal coil of sheet material. These formulae may be generalized on the domain theory, i.e. by introducing the reversible and irreversible displacements of the domain boundaries and the friction forces (due to micro-eddy currents) slowing down these displacements and leading to a decrease of μ and increase of the loss factor with increasing field frequency. But the diffusion of foreign atoms into the crystal lattice has also to be considered, this delaying the boundary displacements even in the absence of friction forces (delay with respect to the exciting field). The equation of motion of the domain boundaries will then at least involve the quasi-elastic lattice forces and the "friction" forces opposing the immigration of the foreign atoms (ions) into the lattice. These assumptions lead to a generalized and physically sound *B–H* relation. The losses in the ferromagnetic core, without considering micro-eddy currents, but inclusive of the case of an inhomogeneous ferromagnetic, may then be computed, and the micro-eddy loss introduced later by a mere "reduction" method based on an equivalent circuit attributing resistance and reactance to the ferromagnetic losses. The combination of the author's [illegible] with a frequency relation of the complex [illegible]bility for strong magnetic skin-effect given by Pospelov (Abstr. 1492 (1949)] leads to a new method of loss separation, the constants of which may be experimentally determined. Comprehensive experimental data are evaluated by the new method, which is much simpler to handle than previous methods and provides a much clearer insight into the properties of ferromagnetics in weak fields. B. P. KRAUS

Shvarts, A.A.

USSR

Spin resonance in ferromagnetics. A. A. Shvarts. *Zhur. Tekh. Fiz.* 23, 411-16(1953).—Mo[illegible] when used as a core of an induction coil shows a resonance of effective induction $L_{eff.}$ and effective resistance $R_{eff.}$ at 45 kc. This resonance disappears upon immersion in a liquid; the frequency depends on the core diameter. The phenomenon is explained on the basis of a theory by Landau and Lifshits (*Physik. Z. Sowjetunion* 8, 157(1935)). A strong effect of magnetostriction must be expected; the theory is applicable to any ferromagnetic, and resonance was observed in permalloy. Oxifer can show several resonant frequencies.

S. Pakswer

"Study and Computation of Losses in Cores of Ferromagnetic Bodies."
Cand Phys-Math Sci, Leningrad State ", Leningrad, 1954. (RZhFiz, Feb 55)

SO: Sum. No. 631, 26 Aug 55 - Survey of Scientific and Technical Dissertations Defended at USSR Higher Educational Institutions (14)

USSR/ Physics - Ferrites

Card 1/1 Pub. 43 - 7/11

Authors : Shvarts, A. A.

Title : Study of the clinkering temperature effect on the mechanical, structural, and electromagnetic properties of the "oxyfer-2000" (ferrite)

Periodical : Izv. AN SSSR ser. fiz. 18/4, 489-493, Jul - Aug 1954

Abstract : A study of the clinkering temperature effect on mechanical structural and electromagnetic properties of the ferrite "oxyfer 2000" is presented. Due to some peculiarities in the structural characteristics of the "oxyfer 2000", a special method, developed by Hoffman, was applied in the study. The results are presented in a series of graphs which are explained. Three USSR references (1935-1953). Illustrations.

Institution : ...

Submitted : May 12, 1954

FERRITS, FIZ.

PHASE I BOOK EXPLOITATION SOV/4893

Vsesoyuznoye soveshchaniye po fizike, fiziko-khimicheskim svoyatvam ferritov i fizicheskim osnovam ikh primeneniya. 3d, Minsk, 1959

Ferrity; fizicheskiye i fiziko-khimicheskiye svoystva. Doklady (Ferrites; Physical and Physicochemical Properties. Reports) Minsk, Izd-vo AN BSSR, 1960. 655 p. Errata slip inserted. 4,000 copies printed.

Sponsoring Agencies: Nauchnyy sovet po magnetizmu AN SSSR. Otdel fiziki tverdogo tela i poluprovodnikov AN BSSR.

Editorial Board: Resp. Ed.: M. N. Sirota, Academician of the Academy of Sciences BSSR; K. P. Belov, Professor; Ye. I. Kondorskiy, Professor; K. M. Polivanov, Professor; R. V. Telesnin, Professor; G. A. Smolenskiy, Professor; N. N. Sholtis, Candidate of Physical and Mathematical Sciences; Z. M. Seleznenkova; and Tech. Ed.: Z. Volokhanovich.

PURPOSE: This book is intended for physicists, physical chemists, radio electronics engineers, and technical personnel engaged in the production and use of ferromagnetic materials. It may also be used by students in advanced courses in radio electronics, physics, and physical chemistry.

COVERAGE: The book contains reports presented at the Third All-Union Conference on Ferrites held in Minsk, Belorussian SSR. The reports deal with magnetic transformations, electrical and galvanomagnetic properties of ferrites, studies of the growth of ferrite single crystals, problems in the chemical and physical analysis of ferrites having cohesive analysis of ferrites studies of ferrites having rectangular hysteresis loops and multicomponent ferrite systems exhibiting spontaneous rectangularity, problems in magnetic attraction, highly coercive ferrites, magnetic spectroscopy, ferromagnetic resonance, magneto-optics, physical principles of using ferrite components in electrical circuits, anisotropy of electrical and magnetic properties, etc. The Committee on Magnetics, AS USSR (S. V. Vonsovskiy, Chairman) organized the conference. References accompany individual articles.

SOV/4893

Card 17/18

Card 4/18

ACC NR: AP5025803 SOURCE CODE: UR/0363/65/001/009/1617/1619

47
46

AUTHOR: Shvarts, A. A.; Dukhovskaya, Ye. L.; Agranovskaya, A. I.

ORG: none

TITLE: New transparent garnet

SOURCE: AN SSSR. Izvestiya. Neorganicheskiye materialy, v. 1, no. 9, 1965, 1617-1619

TOPIC TAGS: garnet, gallium compound, calcium compound, niobium compound, CRYSTAL OPTIC PROPERTY, X RAY DIFFRACTION ANALYSIS

ABSTRACT: In order to produce optically transparent compounds, an attempt was made to synthesize the compound $Ga_3Ga_{3.5}Nb_{1.5}O_{12}$ and solid solutions $Ga_3Fe_xGa_{3.5-x}Nb_{1.5}O_{12}$ (where $0 \leq x \leq 0.5$). The samples were prepared by mixing $GaCO_3$, Ga_2O_3, Nb_2O_5, and Fe_2O_3 in an agate mortar and firing at high temperatures. The products were analyzed by x-ray diffraction with a URS-50I unit. Analysis showed that in the absence of Fe_2O_3 or when it is introduced in amounts corresponding to values of x from 0.1 to 0.3, single-phase solid solutions with a garnet structure are formed (beginning at 1250°C for $x = 0$ and 1150°C for $x = 0.1$ and 0.3). It was found that

UDC: 546.41'681'723'882.5

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L 14588-66

ACC NR: AP5025803

in the compound $Ga_3Ga_{3.5}Nb_{1.5}O_{12}$, the niobium ions occupy only octahedral positions. A 100-μ thick polycrystalline plate of this compound is transparent in the 0.8-10μ range. Orig. art. has: 1 figure, 1 table.

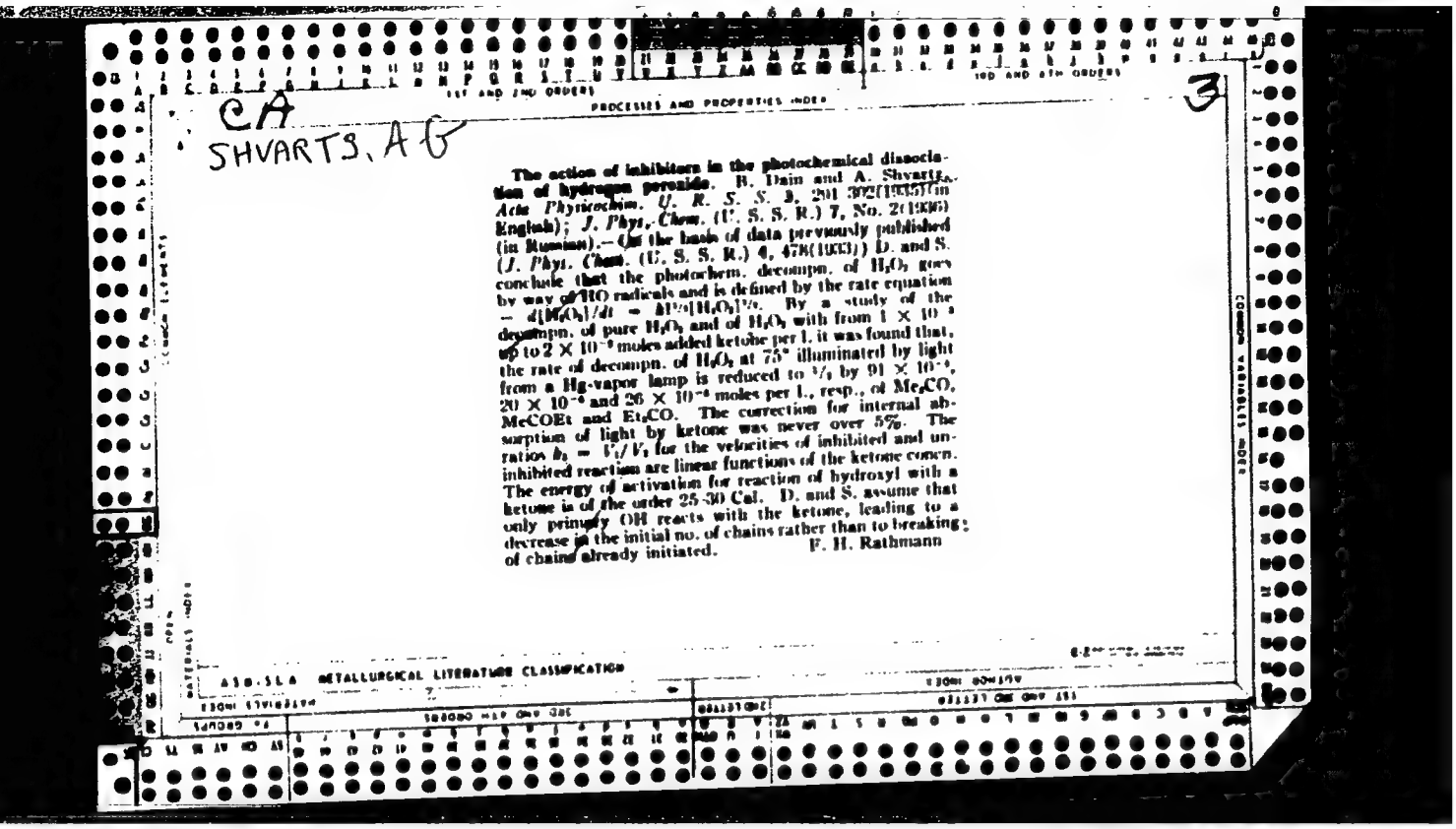
SUB CODE: 08, 07 SUBM DATE: 03May65/ ORIG REF: 001/ OTH REF: 005

FW

Card 2/2

[redacted], A. [redacted].

Docent, Lung Clinic, Inst. Clinic, Inst. Climatotherapy of Tuberculosis, Yalta, -c1948-.
"Thalassotherapy in Tuberculosis of the Lungs," Prob. Tube., No. 1, 1948.



CA
SHVARTS, A G

3

PROCESSES AND PROPERTIES INDEX

The action of inhibitors in the photochemical dissociation of hydrogen peroxide. B. Dain and A. Shvartz. *Acta Physiochim. U. R. S. S.* 3, 201-302(1935)(in English); *J. Phys. Chem.* (U. S. S. R.) 7, No. 2(1936) (in Russian).—On the basis of data previously published (*J. Phys. Chem.* (U. S. S. R.) 4, 478(1933)) D. and S. conclude that the photochem. decompn. of H_2O_2 goes by way of HO radicals and is defined by the rate equation $-d[H_2O_2]/dt = k[H_2O_2]^{1/2}$. By a study of the decompn. of pure H_2O_2 and of H_2O_2 with from 1×10^{-9} up to 2×10^{-6} moles added ketone per l. it was found that, the rate of decompn. of H_2O_2 at 75° illuminated by light from a Hg-vapor lamp is reduced to ½ by 91×10^{-6}, 20×10^{-6} and 26×10^{-6} moles per l., resp., of Me_2CO, MeCOEt and Et_2CO. The correction for internal absorption of light by ketone was never over 5%. The ratios $k_0 = V_i/V_0$ for the velocities of inhibited and uninhibited reaction are linear functions of the ketone concn. The energy of activation for reaction of hydroxyl with a ketone is of the order 25-30 Cal. D. and S. assume that only primary OH reacts with the ketone, leading to a decrease in the initial no. of chains rather than to breaking of chains already initiated. F. H. Rathmann

A10-51A METALLURGICAL LITERATURE CLASSIFICATION

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USSR

Effect of molecular interaction on the kinetics of swelling of elastomers. V. E. Gul and A. G. Shvarts (Lomonosov Inst. Fine Chem. Technol., Moscow). *Kolloid. Zhur.* 17, 24–30; *Colloid J.* (U.S.S.R.) 17, 21–5(1955)(Engl. translation); cf. preceding abstr.—When a rubber was immersed in a liquid to swell, its wt. became a linear function of time after a period t. This t was, at room temp., for a vulcanizate (I) of smoked-sheet rubber 25, 48, and 192 hrs. for swelling in MeCOEt, EtOH, and MeOH, resp.; the difference between the ds. ρ of the cohesion energy of I and the solvent also increased from MeCOEt to MeOH. At 53°, t for a vulcanizate (with 0.5% S) of butadiene-acrylonitrile polymer (II) and a vulcanizate (0.5% S) of butadiene-styrene polymer (III) in di-Bu sebacate (IV) was 156 and 108 hrs., resp.; and the difference between the ρ of II and IV was greater than that between III and IV. Thus the rate of swelling is greater the smaller the difference between the ρ of the polymer and solvent. The greater the swelling, the more rapidly t decreased with rise of temp. Thus, t for III in IV (large swelling) decreased from 136 to 90 hrs., while t for III in di-Bu phthalate (moderate swelling) decreased from 48 to 20 hrs. between 40 and 60°. J. J. B.

SHVARTS, A. G.

The compatibility of high polymers. A. G. Shvarts (Sci. Research Inst. Tire Ind., Moscow). *Kolloid. Zhur.* 18, 755–61(1956).—The cohesion-energy density, E, is calcd. for 27 amorphous polymers. When the difference $(E_1^{1/2} - E_2^{1/2})^2$ for polymers 1 and 2 is small, the polymers are compatible; from literature data, this difference must be <0.017 cal./cc. Polymer mixts. are mechanically strong only when this difference is small. J. J. Bikerman

BUYKO, G.N.; SHVARTS, A.G.; TUMANOVA, A.I.

Tires made from synthetic polyisoprene rubber. Kauch.i rez. 16 no.5:1-11 My '57. (MLRA 10:7)

1. Nauchno-issledovatel'skiy institut shinnoy promushlennosti.
(Automobiles--Tires) (Isoprene)

SHVARTS, A.G.

Nomograms for the determination of the degree of cross-linking of vulcanizates. Kauch.i rez. 16 no.7:31-34 Jl '57. (MIRA 10:10)

1.Nauchno-issledovatel'skiy institut shinnoy promyshlennosti.
(Rubber, Synthetic)

SHVARTS, A.G.

Judging the interaction of rubbers with solvents. A. G. Shvarts (Tire Inst., Moscow). *Kolloid. Zhur.* 19, 776-83 (1957).—If δ_1' and δ_2' are the specific cohesion energies of rubber and solvent, resp., V is the mol. vol. of solvent, and μ and K depend on the interaction of rubber and solvent, then $\delta_2 = \delta_1 \pm [RT(\mu - 0.25)/KV]^{1/2}$. This equation is suitable for graphic representation. Literature data show that μ is identical for filled and unfilled vulcanizates of a rubber (natural, Neoprene, etc.), and K has one value for all hydrocarbons, another for all ketones and ethers, a 3rd for alcohols, etc. The greater μ, the less the swelling of the rubber in the solvent. J. J. Bikerman

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AUTHOR: Shvarts, A.G. SOV/138-58-11-13/14

TITLE: Evaluation of the Degree of Swelling of Rubbers and Resins with the Aid of Ideal Solutions (Otsenka stepeni nabukhaniya kauchukov i rezin posredstvom uslovnykh sred)

PERIODICAL: Kauchuk i Rezina, 1958, Nr 11, pp 37 - 38 (USSR)

ABSTRACT: This is a detailed criticism of an article published by M.A. Shcherbacheva and S.S. Guseva in Kauchuk i Rezina, 1957, Nr 8. Further investigations into the selection of standard mixtures of solvents are suggested. Changes in the aniline point in a number of normal paraffins are tabulated (Table 1) and hydrocarbons with approximately equal aniline points are listed in Table 2. There are 2 tables and 6 references, 3 of which are Soviet and 3 English.

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SHVARTS, A.G.

Necessary book ("Synthetic Rubber" edited by G.S. Whitby. Reviewed by A.G. Shvarts). Kauch. i rez. 17 no.6:40 Je '58. (MIRA 11:7)

(Rubber, Synthetic)

AUTHOR: Shvarts, A G. 76-32-3-37/43

TITLE: Comparative Determinations of the Cohesion Energies of Natural and Synthetic Polyisoprene Rubbers (Sravnitel'noye opredeleniye energii kogezii natural'nogo i sinteticheskogo poliizoprenovykh kauchukov)

PERIODICAL: Zhurnal Fizicheskoy Khimii, 1958, Vol 32, Nr 3, pp 718-719 (USSR)

ABSTRACT: In the present paper, determinations of the specific cohesion energy, which serves as a measure of the intermolecular interaction of polymers, are performed with natural rubber, [illegible] SKI, and vulcanizates NK. Data on the method of testing and the composition of the vulcanizate, as well as formulae of calculation are given. The final calculation was performed according to Gumbrell, Mullins and Rivlin. The characteristic of the interaction between the rubber and the solvent is performed according to the well-known equation by Flory (reference 3). From a [illegible] follows that the quantities of parameters of the vulcanizates NK and SKI possess very similar values. A diagram of the solubility

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76-32-3-37/43

Comparative Determinations of the Cohesion Energies of Natural and Synthetic Polyisoprene Rubbers

parameter function is given. From the latter the specific cohesion energy of the investigated rubbers is given with 68.0 - 69.0 cal/cm^3, from which it is concluded that the latter, in spite of a different content of cis- and trans- 1-4 bonds as well as 3-4 bonds, possess an equal intermolecular interaction (cohesion). The possibility, however, is left open that the influence of structure [illegible] to accuracy of measurement of the method employed. Thus it is considered an established fact that the specific cohesion energy of NK and SKI, determined by the method of swelling, is equal in spite of structural differences. There are 1 figure, 1 table, and 5 references, 2 of which are Soviet.

ASSOCIATION: Institut shinnoy promyshlennosti (Institute of Tire Industry).
SUBMITTED: May 23, 1957

Card 2/2

S/138/59/000/012/001/006

AUTHORS: Shvarts, A. G., Buykov, G. N.

TITLE: On Certain Aspects of Vulcanization of Rubber From Synthetic Isoprene SKI Raw Material at High Temperatures

PERIODICAL: Kauchuk i Rezina, 1959, No. 12, pp. 1-4

TEXT: The authors point out the possibilities of increasing the production output of the rubber industry by vulcanizing automobile tires and casings at temperatures above 143°C (without decreasing the rubber quality). It was shown that the decay process and the regrouping of the sulfur bonds of the vulcanizates play a significant part in the destruction of the latter (Refs. 1-3, 4, 5). It was also shown that the properties of synthetic isoprene SKI rubber are similar to those of natural rubber. An increase in temperature during the vulcanization process brought about a drop in the strength of the SKI rubber and a general decline of the physico-mechanical properties of the vulcanizates. The vulcanization possibilities of rubber on a SKI base and at temperatures above 143°C without decreasing the hardness indices in spite of the presence of destruction processes was studied. Filled and non-filled SKI

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On Certain Aspects of Vulcanization of Rubber From Synthetic Isoprene SKI Raw Material at High Temperatures

vulcanizates (with 50 weight parts of channel carbon black) were investigated. These contained various amounts of sulfur and accelerator, 3.0 weight parts of zinc oxide and 2.0 weight parts of stearin. A description is given of the procedures undertaken and the component parts used. The main physico-mechanical indices and the concentration of the transverse vulcanization bonds were determined. The formula for the determination of the concentration is given. Fig. 1 and 2 show the relationship between the rupture-resistance and the relative expansion of the SKI vulcanizates, containing BT sulfonamide as accelerator, and between the similar NR vulcanizates and the degree of the transverse seam. Tables 1 and 2 give a listing of the test results performed on the filled and non-filled SKI rubbers with various vulcanizing groups, and vulcanized at various temperatures. The relationship obtained for the rubber stability and the degree of the transverse seam is the result of the insufficiently regular structure of the SKI rubber, which is further explained in Refs. 4 and 7. As a result of this phenomenon, the formation of the crystalline phase takes place only at certain degrees of expansion in the SKI vulcanizates. A special composition for the SKI tire rubber was developed by the chemico-

On Certain Aspects of Vulcanization of Rubber From Synthetic Isoprene SKI Raw Material at High Temperatures

technological department of the NIIShP, on the basis of the regularities concerning the changes of SKI rubber. The indices of the rubbers vulcanized at 163°C were not lower than that of the rubbers vulcanized at 138°C (see Table 3). The changes of the main indices of the protective rubber with an increase in the vulcanizing temperature are shown in Table 4. As a result of the experimental data obtained it was shown that the vulcanizing group should be intensified in the vulcanization of SKI-based rubber for automobile tires at high temperatures. The authors conclude that with an increase in the vulcanization temperature the value of the rupture-resistance of the SKI rubber changes depending on the initial thickness of the vulcanization lattice. They also proved that there is a possibility of producing SKI rubbers which, with an increase in vulcanization temperature would undergo an increase in their stability. There are 3 sets of graphs, 4 tables, 7 Soviet references.

ASSOCIATION: Nauchno-issledovatel'skiy institut shinnoy promyshlennosti (Scientific-Research Institute of the Tire Industry)

5(1)
AUTHORS: Shvarts, A. G., Buyko, G. N. SOV/20-125-2-36/64

TITLE: Some Problems Concerning the Effect of Vulcanization Temperature on the Strength of Rubbers Made of Synthetic Polyisoprene SKI Caoutchouc (Nekotoryye voprosy vliyaniya temperatury vulkanizatsii na prochnostnyye svoystva rezin iz sinteticheskogo poliizoprenovogo kauchuka SKI)

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 125, Nr 2, pp 366-368 (USSR)

ABSTRACT: The increase of vulcanization temperature, leads, due to oxidative and thermal processes, to decreasing strength primarily in the case of rubber kinds made of natural rubber (Refs 1-3). The aforesaid rubber is similar to the latter with respect to its structure and properties (Refs 4,5). In some cases, however, the strength of SKI rubber increases with rising temperature. This problem forms the subject of the present communication. Figure 1 shows the dependence of specific elongation and tensile strength in the case of empty vulcanizates and rubber with 50 parts by weight of gas black on the concentration of the vulcanization cross connections, which were determined by the method of swelling (Ref 6). The

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vulcanization took 30 mins. at 143°. The rubber kinds under investigation contained variable doses of sulphur and accelerators: tetramethyl thiuram disulphide, benzothiazole sulphene diethylamine and diphenyl guanidine. Application of various vulcanization accelerators does not alter the nature of the regularities under investigation but leads to a certain scattering of indices (Ref 7). The data of figure 1 (right) show that an increase of the number of vulcanization cross connections favors, up to a certain extent, the orientation of rubber molecules under elongation. The strength of vulcanizates increases accordingly. In samples with a specific elongation of 1000 - 1200 % a crystalline phase is formed by elongation, whereby the tensile strength of SKI vulcanizates approaches that of natural rubber. With further increase of the cross connections, however, the conditions of orientation vary during the deformation of rubber. The experimental results obtained show (Tables 1,2) that the strength of rubber kinds in which the concentration of vulcanization cross connections is higher at the respective temperature than the

Some Problems Concerning the Effect of Vulcanization Temperature on the Strength of Rubbers Made of Synthetic Polyisoprene SKI Caoutchouc

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optimum one, increases due to rising vulcanization temperature. This rise increases in inverse proportion to the relative role of the oxidative processes which destroy the molecules with the action of high temperatures. The strength increases as long as the concentration of the cross connections has not attained the optimum maximum. With further temperature increase the strength begins to decrease. It is supposed that also rubber stocks may be produced from natural and divinyl-styrene rubber, the strength of which does not decrease at an increased vulcanization temperature. There are 1 figure, 2 tables, and 7 Soviet references.

ASSOCIATION: Nauchno-issledovatel'skiy institut shinnoy promyshlennosti (Scientific Research Institute of the Tire Industry)

PRESENTED: October 8, 1958, by V. A. Kargin, Academician

SUBMITTED: September 20, 1958

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